10/578013 PCT/US2004/036578

SEQUENCE LISTING AP20 FOR APTICATION 03 MAY 200

<110>	Garry,	Jr.,	Robert	F.
	Wilson	. Russell B.		

<120> METHOD OF PREVENTING VIRUS:CELL FUSION BY INHIBITING THE FUNCTION OF THE FUSION INITIATION REGION IN RNA VIRUSES HAVING CLASS I MEMBRANE FUSOGENIC ENVELOPE PROTEINS

<130> 12920.0013.00PC00

<150> US 60/517,181

<151> 2003-11-04

<160> 31

<170> PatentIn version 3.3

<210> 1

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 1

Leu Ile Met Lys Asn His Leu Arg Asp Ile Met Gly Ile Pro Tyr Cys

1 10 15

Asn Tyr Ser Arg Tyr Trp Tyr Leu Asn His Thr Ser Thr Gly Lys Thr 20 25 30

Leu Pro Arg Cys Trp Leu Ile 35

<210> 2

<211> 100

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 2

Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala Thr
1 5 10 15

Lys Met Ser Glu Cys Val Leu Gly Gln Ser Lys Arg Val Asp Phe Cys 20 25 30

Gly Lys Gly Tyr His Leu Met Ser Phe Pro Gln Ala Ala Pro His Gly
35 40 45

Val Val Phe Leu His Val Thr Tyr Val Pro Ser Gln Glu Arg Asn Phe
50 60

Thr Thr Ala Pro Ala Ile Cys His Glu Gly Lys Ala Tyr Phe Pro Arg 70 75 80

Glu Gly Val Phe Val Phe Asn Gly Thr Ser Trp Phe Ile Thr Gln Arg 85

Asn Phe Phe Ser 100

<210> 3

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 3

Leu Arg Thr Phe Ser Ile Leu Asn Arg Lys Ala Ile Asp Phe Leu Leu 5 10

Gln Arg Trp Gly Gly Thr Cys His Ile Leu Gly Pro Asp Cys Cys Ile 25

<210> 4

<211> 43

<212> PRT <213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 4

Ile Gln Asp Leu Glu Lys Tyr Val Glu Asp Thr Lys Ile Asp Leu Trp

Ser Tyr Asn Ala Glu Leu Leu Val Ala Leu Glu Asn Gln His Thr Ile

Asp Leu Thr Asp Ser Glu Met Asn Lys Leu Phe

<210> 5

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 5

Leu Gly Leu Lys Leu Leu Arg Tyr Tyr Thr Glu Ile Leu Ser Leu Phe

Gly

· <210> 6

<211> 94

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 6

Trp Tyr Thr Thr Val Pro Lys Tyr Val Ala Thr Gln Gly Tyr Leu Ile

Ser Asn Phe Asp Glu Ser Ser Cys Thr Phe Met Pro Glu Gly Thr Val 25

Cys Ser Gln Asn Ala Leu Tyr Pro Met Ser Pro Leu Leu Gln Glu Cys

Leu Arg Gly Ser Thr Lys Ser Cys Ala Arg Thr Leu Val Ser Gly Ser

Phe Gly Asn Arg Phe Ile Leu Ser Gln Gly Asn Leu Ile Ala Asn Cys

Ala Ser Ile Leu Cys Lys Cys Tyr Thr Thr Gly Thr Ile Ile

<210> 7

<211> 57

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 7

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln

Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala

Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp

Asn His Thr Thr Trp Met Glu Trp Asp

<210> 8

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 8

Ile Leu Asn Arg Lys Ala Ile Asp Phe 5

<210> 9

<211> 8

<212> PRT <213> Artificial Sequence

<220>

WO 2005/044992 4/13 <223> Synthetic peptide <400> 9 Cys His Ile Leu Gly Pro Asp Cys <210> 10 <211> 19 <212> PRT <213> Artificial Sequence <220> <223> Synthetic peptide <400> 10 Phe Leu Leu Gln Arg Trp Gly Gly Thr Cys His Ile Leu Gly Pro Asp Cys Cys Ile <210> 11 <211> 9 <212> PRT <213> Artificial Sequence <220> <223> Synthetic peptide <400> 11 Leu Lys Leu Leu Arg Tyr Tyr Thr Glu <210> 12 <211> 10 <212> PRT <213> Artificial Sequence <220> <223> Synthetic peptide <400> 12 Cys Thr Phe Met Pro Glu Gly Thr Val Cys 5 <210> 13 <211> 19 <212> PRT <213> Artificial Sequence <220> <223> Synthetic peptide

Trp Tyr Thr Thr Val Pro Lys Tyr Val Ala Thr Gln Gly Tyr Leu Ile 5 10

Ser Asn Phe

<400> 13

```
WO 2005/044992
<210> 14
<211> 9
<212> PRT
<213> Artificial Sequence
<220>
<223> Synthetic peptide
<400> 14
Cys Leu Arg Gly Ser Thr Lys Ser Cys
<210> 15
<211> 36
<212> PRT
<213> Artificial Sequence
<220>
<223> Synthetic peptide
<400> 15
Thr Leu Val Ser Gly Ser Phe Gly Asn Arg Phe Ile Leu Ser Gln Gly
Asn Leu Ile Ala Asn Cys Ala Ser Ile Leu Cys Lys Cys Tyr Thr Thr
Gly Thr Ile Ile
       35
```

<210> 16

<211> 234

<212> PRT

<213> LASSA VIRUS

<400> 16

Leu Leu Gly Thr Phe Thr Trp Thr Leu Ser Asp Ser Glu Gly Asn Glu

Thr Pro Gly Gly Tyr Cys Leu Thr Arg Trp Met Leu Ile Glu Ala Glu 25

Leu Lys Cys Phe Gly Asn Thr Ala Val Ala Lys Cys Asn Glu Lys His

Asp Glu Glu Phe Cys Asp Met Leu Arg Leu Phe Asp Phe Asn Lys Gln

Ala Ile Arg Arg Leu Lys Thr Glu Ala Gln Met Ser Ile Gln Leu Ile

Asn Lys Ala Val Asn Ala Leu Ile Asn Asp Gln Leu Ile Met Lys Asn

His Leu Arg Asp Ile Met Gly Ile Pro Tyr Cys Asn Tyr Ser Arg Tyr 100

Trp Tyr Leu Asn His Thr Ser Thr Gly Lys Thr Ser Leu Pro Arg Cys

115 120 125

Trp Leu Ile Ser Asn Gly Ser Tyr Leu Asn Glu Thr Lys Phe Ser Asp 130 135 140

Asp Ile Glu Gln Gln Ala Asp Asn Met Ile Thr Glu Met Leu Gln Lys 145 150 155 160

Glu Tyr Ile Asp Arg Gln Gly Lys Thr Pro Leu Gly Leu Val Asp Leu 165 170 175

Phe Val Phe Ser Thr Ser Phe Tyr Leu Ile Ser Ile Phe Leu His Leu 180 185 190

Val Lys Ile Pro Thr His Arg His Ile Val Gly Lys Pro Cys Pro Lys 195 200 205

Pro His Arg Leu Asn His Met Gly Ile Cys Ser Cys Gly Leu Tyr Lys 210 215 220

Gln Pro Gly Val Pro Val Arg Trp Lys Arg 225 230

<210> 17

<211> 388

<212> PRT

<213> SARS VIRUS

<400> 17

Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro Phe Ala Met Gln 1 5 10 15

Met Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr Gln Asn Val Leu Tyr
20 25 30

Glu Asn Gln Lys Gln Ile Ala Asn Gln Phe Asn Lys Ala Ile Ser Gln 35 40 45

Ile Gln Glu Ser Leu Thr Thr Ser Thr Ala Leu Gly Lys Leu Gln 50 55 60

Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn Thr Leu Val Lys Gln 65 70 75 80'

Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val Leu Asn Asp Ile Leu 85 90 95

Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln Ile Asp Arg Leu Ile 100 105 110

Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr Gln Gln Leu Ile 115 120 125

Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala Thr Lys Met 130 135 140

Ser Glu Cys Val Leu Gly Gln Ser Lys Arg Val Asp Phe Cys Gly Lys 145 150 155 160

Gly Tyr His Leu Met Ser Phe Pro Gln Ala Ala Pro His Gly Val Val 165 170 175

Phe Leu His Val Thr Tyr Val Pro Ser Gln Glu Arg Asn Phe Thr Thr 180 185 190

Ala Pro Ala Ile Cys His Glu Gly Lys Ala Tyr Phe Pro Arg Glu Gly 195 200 205

Val Phe Val Phe Asn Gly Thr Ser Trp Phe Ile Thr Gln Arg Asn Phe 210 215 220

Phe Ser Pro Gln Ile Ile Thr Thr Asp Asn Thr Phe Val Ser Gly Asn 225 230 235 240

Cys Asp Val Val Ile Gly Ile Ile Asn Asn Thr Val Tyr Asp Pro Leu 245 250 255

Gln Pro Glu Leu Asp Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys 260 265 270

Asn His Thr Ser Pro Asp Val Asp Leu Gly Asp Ile Ser Gly Ile Asn 275 280 285

Ala Ser Val Val Asn Ile Gln Lys Glu Ile Asp Arg Leu Asn Glu Val 290 295 300

Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln Glu Leu Gly Lys 305 310 315 320

Tyr Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Val Trp Leu Gly Phe Ile 325 330 335

Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Leu Leu Cys Cys Met 340 345 , 350

Thr Ser Cys Cys Ser Cys Leu Lys Gly Ala Cys Ser Cys Gly Ser Cys 355 360 365

Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val Leu Lys Gly Val Lys 370 375 380

Leu His Tyr Thr 385

<210> 18

<211> 175

<212> PRT

<213> EBOLA VIRUS

<400> 18

Glu Ala Ile Val Asn Ala Gln Pro Lys Cys Asn Pro Asn Leu His Tyr

5 10 15

Trp Thr Thr Gln Asp Glu Gly Ala Ala Ile Gly Leu Ala Trp Ile Pro 20 25 30

Tyr Phe Gly Pro Ala Ala Glu Gly Ile Tyr Thr Glu Gly Leu Met His 35 40 45

Asn Gln Asp Gly Leu Ile Cys Gly Leu Arg Gln Leu Ala Asn Glu Thr 50 55 60

Thr Gln Ala Leu Gln Leu Phe Leu Arg Ala Thr Thr Glu Leu Arg Thr
65 70 75 80

Phe Ser Ile Leu Asn Arg Lys Ala Ile Asp Phe Leu Leu Gln Arg Trp 85 90 95

Gly Gly Thr Cys His Ile Leu Gly Pro Asp Cys Cys Ile Glu Pro His 100 105 110

Asp Trp Thr Lys Asn Ile Thr Asp Lys Ile Asp Gln Ile Ile His Asp 115 120 125

Phe Val Asp Lys Thr Leu Pro Asp Gln Gly Asp Asn Asp Asn Trp Trp 130 135 140

Thr Gly Trp Arg Gln Trp Ile Pro Ala Gly Ile Gly Val Thr Gly Val 145 150 155 160

Ile Ile Ala Val Ile Ala Leu Phe Cys Ile Cys Lys Phe Val Phe 165 170 175

<210> 19

<211> 191

<212> PRT

<213> INFLUENZA VIRUS

<400> 19

Gly Leu Phe Gly Ala Ile Ala Gly Phe Ile Glu Asn Gly Trp Glu Gly
1 5 10 15

Met Ile Asp Gly Trp Tyr Gly Phe Arg His Gln Asn Ser Glu Gly Thr 20 25 30

Gly Gln Ala Ala Asp Leu Lys Ser Thr Gln Ala Ala Ile Asp Gln Ile 35 40 45

Asn Gly Lys Leu Asn Arg Val Ile Glu Lys Thr Asn Glu Lys Phe His 50 55 60

Gln Ile Glu Lys Glu Phe Ser Glu Val Glu Gly Arg Ile Gln Asp Leu 65 70 75 80

Glu Lys Tyr Val Glu Asp Thr Lys Ile Asp Leu Trp Ser Tyr Asn Ala 85 90 95

Glu Leu Leu Val Ala Leu Glu Asn Gln His Thr Ile Asp Leu Thr Asp 100 105 110

Ser Glu Met Asn Lys Leu Phe Glu Lys Thr Arg Arg Gln Leu Arg Glu 115 120 125

Asn Ala Glu Glu Met Gly Asn Gly Cys Phe Lys Ile Tyr His Lys Cys 130 135 140

Asp Asn Ala Cys Ile Glu Ser Ile Arg Asn Gly Thr Tyr Asp His Asp 145 150 155 160

Val Tyr Arg Asp Glu Ala Leu Asn Asn Arg Phe Gln Ile Lys Gly Val 165 170 175

Glu Leu Lys Ser Gly Tyr Lys Asp Trp Arg Cys Asn Ile Cys Ile 180 185 190 <211> 438

<212> PRT

<213> MEASLES VIRUS

<400> 20

Phe Ala Gly Val Val Leu Ala Gly Ala Ala Leu Gly Val Ala Thr Ala

1 10 15

Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Met Leu Asn Ser 20 25 30

Gln Ala Ile Asp Asn Leu Arg Ala Ser Leu Glu Thr Thr Asn Gln Ala . 35 40 45

Ile Glu Ala Ile Arg Gln Ala Gly Gln Glu Met Ile Leu Ala Val Gln 50 55 60

Gly'Val Gln Asp Tyr Ile Asn Asn Glu Leu Ile Pro Ser Met Asn Gln 65 70 75 80

Leu Ser Cys Asp Leu Ile Gly Gln Lys Leu Gly Leu Lys Leu Arg 85 90 95

Tyr Tyr Thr Glu Ile Leu Ser Leu Phe Gly Pro Ser Leu Arg Asp Pro 100 105 110

Ile Ser Ala Glu Ile Ser Ile Gln Ala Leu Ser Tyr Ala Leu Gly Gly
115 120 125

Asp Ile Asn Lys Val Leu Glu Lys Leu Gly Tyr Ser Gly Gly Asp Leu 130 135 140

Leu Gly Ile Leu Glu Ser Arg Gly Ile Lys Ala Arg Ile Thr His Val 145 150 155 160

Asp Thr Glu Ser Tyr Phe Ile Val Leu Ser Ile Ala Tyr Pro Thr Leu 165 170 175

Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly Val Ser Tyr 180 185 190

Asn Ile Gly Ser Gln Glu Trp Tyr Thr Thr Val Pro Lys Tyr Val Ala 195 200 205

Thr Gln Gly Tyr Leu Ile Ser Asn Phe Asp Glu Ser Ser Cys Thr Phe 210 215 220

Met Pro Glu Gly Thr Val Cys Ser Gln Asn Ala Leu Tyr Pro Met Ser 225 230 230 235

Pro Leu Leu Gln Glu Cys Leu Arg Gly Ser Thr Lys Ser Cys Ala Arg 245 250 255

Thr Leu Val Ser Gly Ser Phe Gly Asn Arg Phe Ile Leu Ser Gln Gly 260 265 270

Asn Leu Ile Ala Asn Cys Ala Ser Ile Leu Cys Lys Cys Tyr Thr Thr 275 280 285

Gly Thr Ile Ile Asn Gln Asp Pro Asp Lys Ile Leu Thr Tyr Ile Ala 290 295 300

Ala Asp His Cys Pro Val Val Glu Val Asn Gly Val Thr Ile Gln Val 305 310 315 320

Gly Ser Arg Arg Tyr Pro Asp Ala Val Tyr Leu His Arg Ile Asp Leu 325 330 335

Gly Pro Pro Ile Ser Leu Glu Arg Leu Asp Val Gly Thr Asn Leu Gly 340 345 350

Asn Ala Ile Ala Lys Leu Glu Asp Ala Lys Glu Leu Leu Glu Ser Ser 355 360 365

Asp Gln Ile Leu Arg Ser Met Lys Gly Leu Ser Ser Thr Ser Ile Val 370 375 380

Tyr Ile Leu Ile Ala Val Cys Leu Gly Gly Leu Ile Gly Ile Pro Ala 385 390 395 400

Leu Ile Cys Cys Cys Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Val 405 410 415

Gly Met Ser Arg Pro Gly Leu Lys Pro Asp Leu Thr Gly Thr Ser Lys 420 425 430

Ser Tyr Val Arg Ser Leu 435

<210> 21

<211> 199

<212> PRT

<213> HIV

<400> 21

Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly 1 5 10 15

Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln 20 25 30

Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 35 40 45

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 50 55 60

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln 65 70 75 80

Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala 85 90 95

Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp
100 105 110

Asn His Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr 115 120 125

Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys 130 135 140

Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn 145 150 155 160

```
Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Leu Phe Ile Met 165 170 175
```

Ile Val Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser 180 185 190

Ile Val Asn Arg Val Arg Gln
195

<210> 22

<211> 22

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic peptide

<400> 22

Gly Asn His Ile Leu Ser Leu Val Gln Asn Ala Pro Tyr Gly Leu Tyr 1 5 10 15

Phe Ile His Phe Ser Trp 20

<210> 23

<211> 19

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic peptide

<400> 23

Gly Tyr Phe Val Gln Asp Asp Gly Glu Trp Lys Phe Thr Gly Ser Ser 1 5 10 15

Tyr Tyr Tyr

<210> 24

<211> 22

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic peptide

<400> 24

Gly Tyr His Leu Met Ser Phe Pro Gln Ala Ala Pro His Gly Val Val 1 5 10 15

Phe Leu His Val Thr Tyr 20

<210> 25

<211> 19

<212> PRT

<213> Artificial sequence

```
<220>
```

<223> Synthetic peptide

<400> 25

Gly Val Phe Val Phe Asn Gly Thr Ser Trp Phe Ile Thr Gln Arg Asn 1 5 10 15

Phe Phe Ser

<210> 26

<211> 19

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic peptide

<400> 26

Met Phe Pro Pro Trp Ser Ala Ala Ala Gly Val Pro Phe Ser Leu Ser 1 5 10 15

Val Gln Tyr

<210> 27

<211> 26

<212> PRT

<213> Artificial sequence

· <220>

<223> Synthetic peptide

<400> 27

Gln Asp Ala Ile Lys Lys Leu Asn Glu Ser Tyr Ile Asn Leu Lys Glu $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Val Gly Thr Tyr Glu Met Tyr Val Lys Trp
20 25

<210> 28

<211> 19

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic peptide

<400> 28

Met Tyr Lys Thr Pro Thr Leu Lys Tyr Phe Gly Gly Phe Asn Phe Ser 1 5 10 15

Gln Ile Leu

<210> 29

<211> 28

<212> PRT

<213> Artificial sequence

```
<220>
<223> Synthetic peptide
<400> 29
```

Ala Ala Cys Glu Val Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu 1 5 10 15

Gln Glu Leu Gly Lys Tyr Glu Gln Tyr Ile Lys Trp 20 25

<210> 30 <211> 15 <212> PRT <213> Artificial sequence <220>

<223> Synthetic peptide

<400> 30

Asn Tyr Ser Lys Tyr Trp Tyr Leu Asn His Thr Thr Thr Gly Arg 1 $$ 5 $$ 10 $$ 15

<210> 31 <211> 19 <212> PRT <213> Artificial sequence <220>

<223> Synthetic peptide

<400> 31

Gly Thr Phe Thr Trp Thr Leu Ser Asp Ser Glu Gly Lys Asp Thr Pro $1 \hspace{1.5cm} 5 \hspace{1.5cm} 10 \hspace{1.5cm} 15$

Gly Gly Tyr